

To ascertain the value of anything ask one who knows; his answer will be what he thinks it worth, based upon his thinking that he knows what others think it worth.

—W. A. SOMERS

ANALYSIS
of
The Chicago Assessors' Plan of
Computing Site Values
and
Comparison thereof with the methods *of the*
Somers Unit System of Realty Valuation
Together with
A Critical Examination of the Application of
the Two Methods of Site Value Computation
as applied to the Chicago Block bounded by
State and Adams Streets, Wabash Avenue and
Jackson Boulevard.

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ANALYSIS of the Chicago Assessors' Plan of Computing Site Values, and Comparison With the More Scientific Methods of the SOMERS UNIT SYSTEM of Realty Valuation

Cleveland, Ohio, February 4, 1911.

City Club of Chicago,
Chicago, Ill.

Gentlemen:—

It is acknowledged by all land valuation experts that a mathematical relation exists between the values of two city sites affected by the same influences; and that there is a mathematical relation between the values of any two portions of the same lot.

This principle is recognized by the sponsors of both the Somers United System of Realty Valuation and the Chicago Plan of computing site values.

This report, which is submitted to the City Club of Chicago as the result of an investigation of the plan of measuring the value of land used by the Chicago Board of Assessors and the Board of Review, shows comparisons between the theory and practice of the Somers System and of the Chicago Plan. It must therefore comprise a discussion of the following questions:

First—Does the Chicago Plan disclose the true mathematical relations in the values of two lots affected by the same influences, and of any parts of the same lot?

Second—Does the Somers System disclose such relations more exactly, and therefore more scientifically than does the Chicago Plan?

This report has been made by our experts, in the hope that the members of the City Club, and the property owners of Chicago, generally, may be awakened to an interest in the scientific assessment of the real estate of your entire city in the quadrennial re-assessment of real estate to be made this year.

During the past year we have made investigations of assessment methods and valuations in about fifty American cities. So far as our investigations have proceeded, we have found an almost complete lack of anything approaching a true system for measuring values of land and buildings of a city so as to make assessments equitable and proportional. We believe that the Chicago Plan, which is acknowledged to be imperfect in some respects, even by the experts of the assessing departments, more nearly approaches the dignity of a system than the methods of any other American city—excepting Cleveland and Columbus, Ohio, where the Somers Unit System has within the past year been put into operation.

FEATURES OF THE TWO SYSTEMS.

A member of your committee has kindly furnished us a description of the Chicago Plan, which we have briefly summarized as follows:

Values are stated as of a unit foot, said unit foot being located where it only has one factor of value. A table showing the value

of lots of various depths as compared with the unit value, has been constructed; by this table the relative value of interior lots is ascertained. A lot 100 feet square at the corner is figured upon the basis of the higher unit, to which is added 60 per cent of the value as figured at the lower unit; where a lot is 50 feet wide on the street of the higher unit, five-sixths of the added value of the 100 foot lot is added to its value as figured at the higher unit value. A table has been worked out from this basis showing the value of each front foot of the corner either way. In the case of an alley, five feet are added to the side or depth of the lot so abutting, as the case may be, and the resulting size of the lot is figured in the regular way.

The salient features of the Somers System are in brief as follows:

Values are stated as of a unit foot, said unit foot being located where it only has one factor of value. A table based upon the Somers curve of value, showing the value of lots of various depths as compared with the unit value, has been constructed. This table is based upon careful and wide investigation as to the facts in the case of given depths, say 50 feet, 100 feet and 150 feet deep, and the mathematical relation of these three results upon every other possible depth. This produces a table quite different from a percentage treatment of this phase, and more consistent, one part with another.

Corner lots are valued as follows: At the corner to be computed is erected a lot 100 feet square, and this lot is divided into squares, 10 feet square each. The Somers corner lot tables give the value of each of these squares for every conceivable combination of values coming together at the corner. The values given in these tables are comparable in a sense to a table of logarithms or an interest table. They are tables of values, and these values have been worked out by Mr. Somers, and are always the mathematical effect of the units of the two streets upon each 10-foot square plot, no matter where in the 100-foot square it may be located. The 10-foot square plot at the corner of the two streets is always the most valuable, the values of all the other squares recede in curves in every direction from this corner square, and these curves are always commensurate with the mathematical effect of one unit upon the other. The actual lots to be computed are diagrammed upon this imaginary 100-foot corner, and the values of each square and part of a square inside the lot lines are added together, thus producing the value of each lot, and apportioning to each lot its share of the enhancement of value by reason of two streets coming together. It does not matter, therefore, in what way the corner is divided up, as we have actual valuation in dollars for every part of it, and not a percentage based upon an arbitrarily selected percentage to be added. When the enhancement of value does not reach 100 feet in either direction from the corner, these corner lot tables measure it only as far as it goes. When the enhancement of value runs over 100 feet, we have another set of tables, sometimes called overlap tables, which not only ascertains the fact, but also the exact place where the enhancement ceases, and the amount that each foot is enhanced. In other words, whatever the effect, the Somers System works out that effect into dollars. By mechanical devices these same corner lot tables and overlap tables may be applied to lots at acute and obtuse corners. By another set of tables, irregular shaped lots are valued upon the basis of the judgment of the value of the unit. By this same set

of tables, and when so used we call them over-lap tables, we ascertain the exact extent of the influence of the unit, so that when we have a lot running through from one street to another we can find out exactly where the influence of the two units comes to a common level.

Alley effect is treated as follows: The land value of the alley is computed, based upon the units controlling its value, and that land value is pro-rated against every foot of land abutting upon the alley.

THE PRINCIPAL DIFFERENCES IN THE TWO SYSTEMS.

The principal differences between the two methods are as follows:

1. The Chicago Plan is applicable only in the business center, and not in the residence district. The Somers System is applicable in any district.

2. The Chicago Plan places a higher relative value on the rear portion of a lot than does the Somers System.

3. The Chicago Plan places a higher value on the first few feet from the front than does the Somers System.

4. The Chicago Plan places a lower value on the first half of a lot 100 feet deep than does the Somers System.

5. The Chicago Plan includes in its depth percentage some of the plottage factor; the Somers System does not. If a small lot is to be valued lower than its proportion of a large plot, under the Somers System that difference would have to be figured by itself, and for what it itself is worth, and is not mixed up with the proportional valuing of the various sizes and shapes. Under the Somers System it is therefore easier to account for the differences in the dollar valuation of parcels affected by the same influences, as those differences are always traceable to varying sizes, shapes, alleys, and corners, and are apparent on the face of the figures.

6. The Chicago Plan assumes that corner enhancement extends always exactly 100 feet either way from the corner; the Somers System does not. The Chicago Plan is too rigid and too arbitrary to work on any other assumption; the Somers System is so flexible that it meets every requirement of corner enhancement, and measures it exactly as it is.

7. The Chicago Corner Plan is based upon the assumption that the lower unit exerts 60 per cent of its influence upon the higher unit. There is nothing in the system to show why 60 per cent fits. The Somers System Corner Plan is based upon the mathematical effect of one unit upon another, and the tables that make this plan workable are actual valuation tables for specific pieces of ground, each in proportion to its location to the corner, both as to distance, and as to direction.

8. The Chicago Plan has no method for computing irregular shapes. The Somers System has an exact and mathematical method.

9. The Chicago Plan has no method of showing the effect of two units applied from opposite directions. By the Somers System we can always find the exact spot where two such units come together at a level value.

10. The Chicago Alley Plan is very defective, and must work hardship upon some properties if carried out as described. The Somers method is equitable and exact, and treats every alley property owner exactly alike, each in proportion to his alley frontage.

PROCESSES OF VALUATION BY THE SOMERS SYSTEM.

There are five processes in valuing property by the Somers System, as follows:

First—The use of the depth curve, or table showing the value of interior lots without alleys, as compared with the value of the unit.

Second—The corner lot tables, by which the enhanced value at or near corners is mathematically and equitably distributed.

Third—The zone tables, by which the value of irregular shapes is ascertained.

Fourth—The over-lap tables, by which the effect of units running in opposite directions is exactly ascertained, thus making it possible to apply unit values to lots running from street to street, and also possible to ascertain other valuable data for land valuation.

Fifth—Alley valuation, by which the effect of alleys may be equitably distributed.

It will therefore be seen that the Somers System is most comprehensive in its scope, and that it undertakes to ascertain and value every separate factor, every combination of factors, and is workable in every part of every city.

The Somers System is based on the law of constant effect of depth upon value. It consists of mathematical formulae and mechanical devices for carrying out that law, so as to ascertain the true proportional values of city sites.

VARIATIONS IN PERCENTAGE OF DEPTH TABLES.

The basic difference between the Chicago Plan and the Somers System of computing land values is found in the variations in the tables of the two methods showing percentages of the unit value used for different depths. This table for the Chicago Plan is called the "Percentage for Depth," and under the Somers System is called the "Curve of Value." That the Percentage for Depth table is only applicable to inside property in what is known as the "Loop District" of Chicago, and is not applicable to the residence or manufacturing district of that or any other city, prevents the Chicago Plan from rising to the plane of a "system" of realty valuation.

The Somers System recognizes that there is more difference in the mathematical relation of the value of the rear part of a residence lot exceeding 100 feet in depth when compared with its front portion, than exists in the mathematical relation of the value of the two portions of an ordinary-sized lot used for retail purposes. The Chicago Plan recognizes that this is so by the fact that it does not provide for mathematical computation of any lots except ordinary lots in the business district.

A true system ought to take into consideration the computation of the mathematical differences of all kinds of properties. In this particular the Somers System is really a system and the Chicago Plan is not.

We tabulate following the differences between the two tables referred to at a few of the important depths, so that a better perspective of the situation may be obtained:

Depth.	Percentage of Unit Chicago Plan.	Percentage of Value Somers System.
1.....	10.99	3.10
5.....	14.95	14.35
10.....	19.90	25.00
25.....	34.35	47.90
40.....	48.80	64.00
50.....	57.50	72.50
75.....	79.35	88.30
100.....	100.00	100.00
125.....	119.35	109.05
150.....	137.50	115.00
175.....	154.35	119.14
200.....	170.00	122.00

It must be remembered that these figures are intended to show the mathematical relation of different portions of actual and "going" divisions of property and are not "hold-up" values in any instance. Take for example the first foot from the front: If a person were to own a strip of land one foot deep along the entire frontage, and if the land immediately behind it were in another's ownership, there is no percentage that the owner of that single foot might not exact in selling to the owner of the land back of that foot; so that the Chicago percentage of nearly 11 per cent would probably be nearer the "hold-up" price than the Somers System value of 3.1 per cent. But it is inconceivable that the proportion of the value of the first foot from the front is nearly 11 per cent of the value of that foot and the 99 more feet behind it. Such a relation is abnormal, and does not really exist in Chicago or any other city.

The Chicago Plan figures an inside lot 50 feet deep at 57.5 per cent of the value of a lot 100 feet deep; this leaves 42.5 per cent for the value of the rear half. It must be remembered in this discussion that the only access that any of this land has is through itself to the street; that is, there is no other influence to be considered of value, except what is obtained through its own frontage.

In no other city do we find that the value of the rear half of a 100 foot lot, which has access only over the front portion of equal size, bears any such relation, and it has never been conclusively proved that this is the case in Chicago, even in the congested Loop district. What has taken place, evidently, in the construction of the Chicago tables, is an attempt to combine the "plottage" idea of additional value into the tables themselves, which would not be at all harmful if all the properties were of an equal plottage, but does tend either to assess an extra amount upon the property owners who plot their property large enough to be useful to the community, or to exempt those property owners who keep their property in size too small for the economic necessities of the community.

There is no argument that the users of the Somers System wish to make against this method of discrimination between property owners; what we do contend for is that when this thing is done it ought to be done separately from the actual computation of land values, and not so mixed up with it that the additions for plottage are hidden from the eye, and not known or shown as a factor to the computation. The chief defect in the Chicago Plan, as we understand it, is that it combines more than the mathematical relation of parts of the same lot, and therefore must work injustice between the owners of various sizes of property affected by the same influences.

The following diagram shows the two curves of depth value plotted for easy comparison:

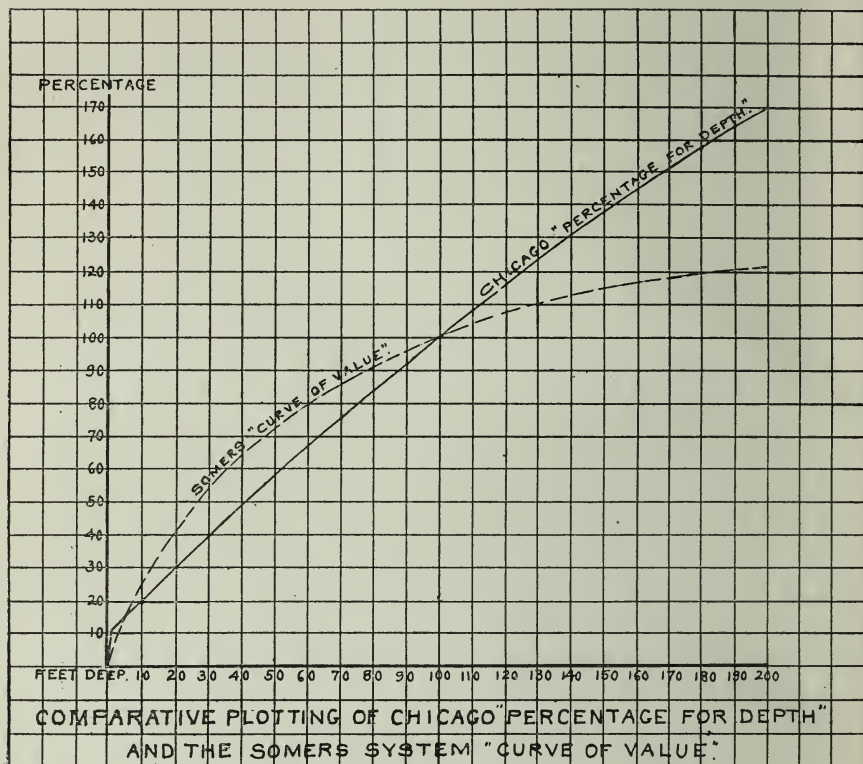


Fig. 1.

By plotting the Chicago Percentage for Depth table and Somers Curve of Value upon scaled paper, the difference in principle is the more easily seen. The Chicago line of value jumps very sharply for the first foot, and from there to the depth of 200 feet the values run in almost a straight line. The knowledge that we all have of receding values points out the fallacy of this treatment. We cannot see why there should be a sharp deflection of values at a depth of one foot, for the very good reason that such an abrupt variation in land values does not exist anywhere. Values go up and down in every direction in curves, and not in straight lines. The unit valuations of any street in the loop district show that this is a recognized fact, when the whole street is taken in perspective. This fact is also recognized in the Chicago curve after the first foot; from that point to 200 feet deep, there is a curve, although that curve is so slight as to be almost a straight line. The point which we wish to make with reference to the sharp jump at a foot of depth is that nowhere else in the Chicago Plan do we find any such treatment of relative values; the query is natural, Why here?

The direction of the whole Chicago line depends upon the place where one locates the percentage value at 50 feet deep. If it is

located at a point practically in a straight line between 1 foot deep and 100 feet deep, the line must run on indefinitely for any depth, thus producing high values for the rear end of very deep lots.

This brings us to the discussion of the value of rear ends of lots as compared with front ends. If these lots were all of one depth, there would be little to the discussion, but it is the attempt to work out a plan that will fit all conditions that produces the necessity. Let us compare two pieces of ground fronting side by side on a street having a \$10,000 unit. (Fig. 2.) These lots are supposed to be both located far enough away from corners to have no corner influence, and neither has an alley. They are exactly alike except as to width, one being 20 feet wide and the other 200 feet wide, both being 200 feet deep. It is manifestly apparent that the wide lot on a street with so high a unit value is more than ten times as useful to the community as the one 20 feet wide. This is so because where land is used so intensively as to be worth \$10,000

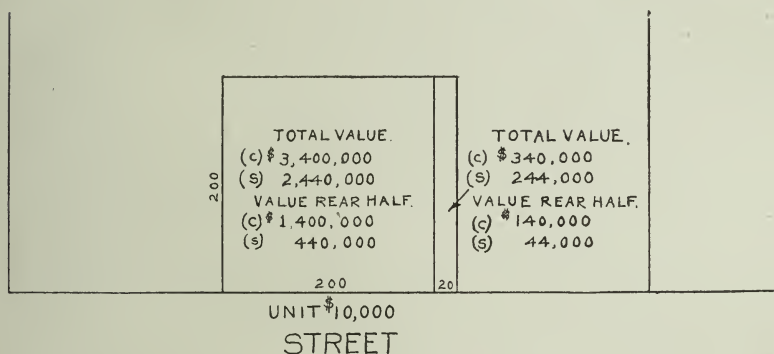


Fig. 2.

a unit foot, a larger plot than 20 feet wide is desired by most business men. This necessity for size is not land value; it is what is usually termed "plottage" value; it is that addition over and above ten times the value of a 20-foot wide lot that the community is willing to pay for the privilege of constructing a building suitable for the necessities of the community at that point. All we contend for is that the natural value of the large piece of land, as land, is ten times the value of the smaller piece, and that if anything is to be added for plottage, it ought not to be done with the eyes shut; it ought not to be called frontage value—and the plottage value, if taxed at all, should be taxed as a plottage factor, and not as value computed from a depth percentage.

There is a fundamental reason for the elimination of all consideration of plottage in fixing the units for the computation of land values. Plottage value is entirely local to a particular spot. The plottage value, for instance, of a tract on one side of a street might be 10 per cent or 15 per cent or some other per cent. Indeed, in streets most intensively used, that is, which have a high unit value, the plottage factor often differs with every different width. It can only be ascertained when treated separately from the natural land value, and separately as to each frontage. Our contention on this point is that the natural value of land, irrespective of plottage, ought to be ascertained the same for a wide frontage as for a narrow

frontage with the same depth, and wherever there is an added value for a particularly fitting size with relation to its frontage value, that factor ought to be valued entirely by itself, and as such.

Under the Chicago Plan the larger lot is worth \$3,400,000 and the smaller lot is worth \$340,000; under the Somers System, at the same 100-foot unit, the larger is worth \$2,440,000 and the smaller \$244,000. Under the Chicago Plan the rear half of the larger lot is worth \$1,400,000, and under the Somers System the rear half is figured at \$440,000. In the case of the smaller lot, the Chicago Plan figures the whole lot at \$340,000, and its rear half at \$140,000; the Somers System computes the whole lot as being worth \$244,000, and the rear half as being worth \$44,000. Under the Chicago Plan the rear of the small lot is found to be over-assessed as compared with the value of the rear of the large lot, as the values of both lots are computed on the basis of the value of the usefulness of the rear portion of the large lot.

The reverse of this is true under the Somers System. First, it is recognized that the community really does produce ten times as much real land value in the rear half of the large lot as is produced by the same community in the rear half of the small lot, and both are figured out on the basis of exactly what that relative value is. If it is desired to add to the natural land value of the large lot for plottage, that is for the additional desirability of the large plot, that may be added as a separate factor, which factor is more easily worked out upon a basis that will treat everybody alike, than can possibly happen when there is an attempt to combine the plottage valuation with land valuation.

What has apparently taken place in the construction of the Chicago table, as we have already pointed out—and the plotting of the two tables together seems to emphasize that point—is that this plottage factor has been included as frontage value. If this is so, or if some other consideration produced the table, the application of the Chicago table must work disastrously to the owners of narrow frontages, or must exempt the owners of large plots from taxation upon a portion of their values.

The Chicago line of value as shown on the chart is certainly indefensible from all the facts touching the relation of site values, one to another. The Somers curve is defensible from any standpoint, and does represent the mathematical relation of the site value that the community produces in the blocks that go to make up a city.

The reason for not adapting the Chicago curve of value to residence property, is also apparent by a glance at the chart. The rear end of residence property bears not even approximately any such relation to the front portion as this chart would work out.

If we eliminate the plottage factor from the Chicago table, we would find there would be an agreement in Chicago, approximately at least, with Mr. Somers' claim that 72½ per cent. of the value of a lot 100 feet deep is in the front half. This would move the curve line representing Chicago's percentage up at the 50-foot depth; and as the line necessarily pivots at 100 feet deep, it would move downward beyond 100 feet deep. This is exactly what Mr. Somers' and all other curves of depth value, except the Chicago table, show.

There are several other curves of value in addition to that of Mr. Somers, and they all show the same tendencies, and differ one from the other but very little; not one of them takes into account the plottage value; all are constructed on natural lines, and do not differ radically from each other. The Chicago curve differs from every other curve of value ever constructed; and the reason for that

difference can only be because of the effort to mix in the plottage factor along with natural factors.

The fallacy of the Chicago Percentage for Depth is clearly illustrated as follows:

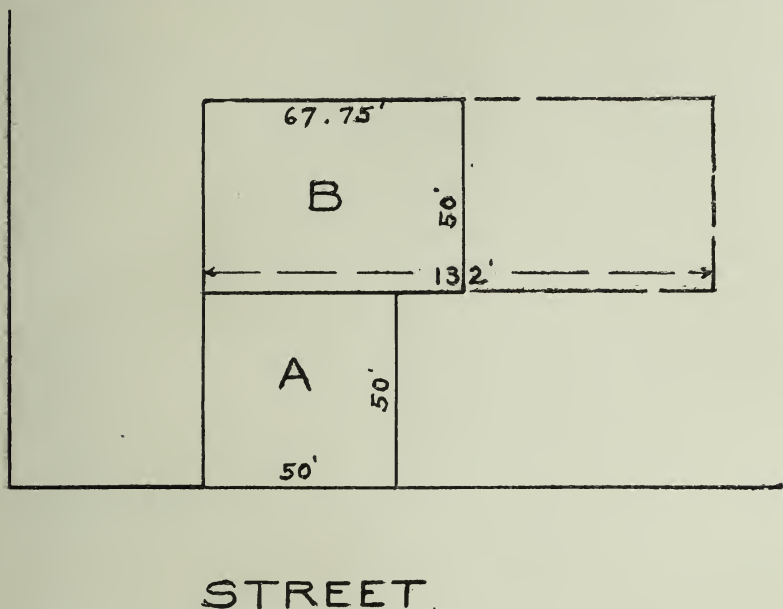


Fig. 3.

The foregoing diagram shows two pieces of land; one is 50 feet wide (A) fronting on the street and is 50 feet deep. Right behind it but under separate ownership in another piece (B) of ground $62\frac{1}{2}$ feet wide and 50 feet deep. Under the Chicago "Percentage for Depth" table, these two parcels of ground would be computed to be worth exactly the same. Simply ask yourself the question, "Which of these two parcels would I choose at the same price?" There is probably no one in Chicago who would choose parcel B in preference to parcel A; nor is there any one so foolish as to pay the same for B as he would be willing to pay for A. Under the Somers System B would have to have a width of 132 feet to be computed to be worth the same as A, and even then one might hesitate to pay the same for B as A.

REASONS FOR A SINGLE CURVE OF VALUE.

The basis of any system for computing land values is necessarily in the method of treatment of the value of each receding foot from the front, on that portion of a street where there is no other influence of value except that which comes through the first foot at the front. The differences in this treatment are graphically explained both by discussion and diagram in another portion of this report. The following, written by Mr. W. A. Somers, the inventor of the Somers System, and Valuation Actuary for the Manufacturers' Appraisal Company, shows the evolution from theory to practice

that finally produced the Somers Curve of Value. While theoretically there ought perhaps to be three "curves of value," Mr. Somers points out the practical reasons for combining them into one as follows:

"In my original researches for the principles underlying the differences in value of the use of different parts of city lots, I found that in retail business property the lots were frequently used to very shallow depths, 50 feet being a very common depth, and in many cases 25 feet; there are cases of use as low as 3 feet. In residence territory it very seldom occurred that lots were less than 75 feet deep, and more frequently ran to 100 or 150 feet in depth. In business districts where property was exclusively used for wholesale purposes, very few lots are used at less than 75 feet to 100 feet, and a great percentage would run over 125 feet in depth.

"In the western cities where I first made this study the boundaries of the different kinds of a property are generally quite distinct—that is, there will be a retail district, a wholesale district, and a residence district, blending more or less along the boundaries, but not generally very much mixed. These facts led me to work out three curves of value, one for the strictly retail property on the basis of 70 per cent for the first 50 feet, 100 per cent for the first 100 feet, 115 per cent for the first 150 feet; and a wholesale curve with about 65 per cent for the first 50 feet, 100 per cent for the first 100 feet, 118 per cent for the first 150 feet; and a residence curve based upon 150 feet in depth in place of 100.

"I very soon discovered that it was impractical to use two unit depths, and determined that 100 feet in depth was the best depth for value units, and that all deductions could be made from this as a unit, more conveniently than any other.

"On continuing the study in eastern cities I found that the divisions of the different uses of property were not so well defined as in the west. On looking the matter over I found that practically shallow lots only are used for retail purposes. In the case of property more than 100 feet in depth the percentages of value of different depths on a basis of a 100-foot unit is practically the same for all kinds of property. Therefore, one curve would answer for all kinds of property, the only exception being that in the case of strictly residence or wholesale property where lots are very shallow, say less than 50 feet in depth, an adjustment must be made. As a matter of fact, cases of this kind occur very seldom. I do not recall more than a half a dozen cases in all my experiences.

"Of course in all rules to be used in this business we can only claim as best the one that will fit the largest number of cases. There will always be exceptions, but the Somers curve of value I think will fit at least 95 per cent of all situations, and it is much better to use only one curve, and make special adjustments for the special cases."

DIFFERENCE IN METHODS OF CORNER VALUATION.

The two methods of estimating corner values are quite different. This difference is fundamental. The Chicago Plan presupposes that the enhancement of values at the corner always extends 100 feet, and never extends more than 100 feet. The Somers System recognizes what we all know to be a fact, that this enhancement varies in its extent. Sometimes it affects values for a distance of less than 100 feet from the corner, and sometimes it affects values more than 100 feet, and sometimes only 100 feet. The Somers System not only recognizes all this as a fact, but has a mathematical method of

ascertaining the exact situation in any given problem, and apportioning the enhancement of values as far and as far only as they may happen to run. This is a very important consideration, especially in the Loop district of Chicago, where corner values are produced by units of wide variation. For instance, a street having a unit value of \$10,000 will affect values farther down a side street having a unit value of only \$1,000, than the \$1,000 unit will influence values from the corner on the \$10,000 street. When we say that this enhancement goes exactly 100 feet in both instances, we are saying what is not true; and when we estimate values on any such rule, we of course do not obtain the true relation of the values of properties at or near such corners.

The Chicago method of adding for corner enhancement is arbitrary. It is not the mathematical effect of one value upon another. To the value of a lot exactly 100 feet each way at the corner, figured on the basis of the value of the higher street, is added 60 per cent of the value as figured on the basis of the lower unit. If the lot is 50 x 100, fronting 50 feet on the best street, 50 per cent of the value of the lower unit is added. If the lot fronts 50 feet on the less valuable street, there is no way under the Chicago Plan of accurately computing the value.

The question naturally arises, why is 60 per cent. added in one case and why 50 per cent. in another? How were the percentages discovered to use in these two situations? Why was not 59 per cent used instead of 60? Why not 65 per cent? We find in the Chicago percentage table that differences are noted to the hundredth part of a per cent. Even in the application of the Chicago corner plan to plots of very small size, we find this 60 per cent distributed cut into percentages starting with .03 of 1 per cent; so we see that in every other particular except that very basis of calculation itself, the Chicago Plan recognizes that value and enhancement of value travels about in fractional amounts; it seems inconceivable therefore—or at least a most remarkable coincidence—that the enhancement at corners should be exactly 60 per cent of the value of the parcel figured on the lower street unit plus the value of the parcel figured on the higher street unit; and that always five-sixths of this enhancement is to be added to the first 50 feet from the corner when it happens to front in one way only—namely, the short end on the good street.

The corner lot plan as used in Chicago is therefore defective in the following particulars:

1—It does not recognize the fact that corner enhancement of values varies in its extent from the corners.

2—It has no method to measure the extent of the corner enhancement from the corner, and assumes that it always extends 100 feet, and never any less than 100 feet.

3—Its method of adding for enhancement is arbitrary in its inception, and is therefore arbitrary in all of its details; there is no basis for the selection of the primary 60 per cent of the value of 100 feet figured on the lower unit.

4—There is no method of estimating the value of a lot less than 100 feet wide fronting on the less valuable street at a corner, with its longer side on the higher-valued street.

Not one of these objections can be made against the Somers System. It does recognize the fact of the variation in the extent of the corner enhancement; it does measure out exactly where the corner enhancement ceases to be felt; its method of adding for the corner influence varies with every combination of values producing

the corner enhancement, and is based in every instance upon the mathematical effect of one unit of value upon another; it works just as well when the lot runs the "wrong" way as when it runs the "right" way.

METHODS OF DISTRIBUTING ALLEY VALUES.

The Chicago Plan of adding for alleys is to add five feet to the width or depth of the lot, as the case may be, and figure the five feet as if it were a part of the lot. This plan works a very grave injustice to the owners of the lots next to that part of the alley where the land value of the alley is highest. An alley foot is approximately the same value in one part of the same alley as in another, and the whole land value of the alley should be pro-rated to all of the property that gets this alley benefit, each in proportion to the number of feet that abut on the alley. Under the Chicago Plan we might find some narrow lots running along-side an alley, and fronting on a street, that would give a land value in five feet of that alley, and next to the narrow lot, which, if added to the value of the narrow lot would produce figures out of all proportion to the real or relative value of that lot. The Somers Plan of treating an alley as a whole, and distributing that value pro rata is not only fairer, but is really in accord with the facts.

APPLICATION OF THE CHICAGO PLAN AND THE SOMERS SYSTEM TO THE SAME BLOCK.

The Chicago block bounded by State and Adams Streets, Wabash Avenue and Jackson Boulevard has been selected by the Chicago assessing department upon which to base comparisons of the effect of the application of the Somers System and the Chicago Plan in actual lot valuations. Mr. Somers spent some time four years ago in work connected with the assessment for tax purposes of Chicago land values, and, no doubt from the effect of his efforts at that time, there has been an attempt to express judgments of value, in the Loop district at least, in values of "unit feet"—that is, parcels of ground a foot wide, and located at about the center of each side of the block. But the lack of scientific application of Mr. Somers' methods in this fundamental act of exercising judgment is shown to exist in the very block submitted to us for examination. This lack will appear in various ways as we discuss this block.

The unit values given to us were as follows:

State street—\$12,000.

Adams street—\$5,000.

Wabash avenue—\$5,000.

Jackson boulevard—\$6,000.

While we shall show that these so-called unit values are not the judgment of value even for a proper use of the Chicago Plan, because all of them are not used every time, as they ought to be on adjacent property, we give below a table showing the valuations as made by the Chicago assessing department and given to us by Mr. Martin, the expert of that department; and second, the values of the same lots as figured by the Somers System, on the supposi-

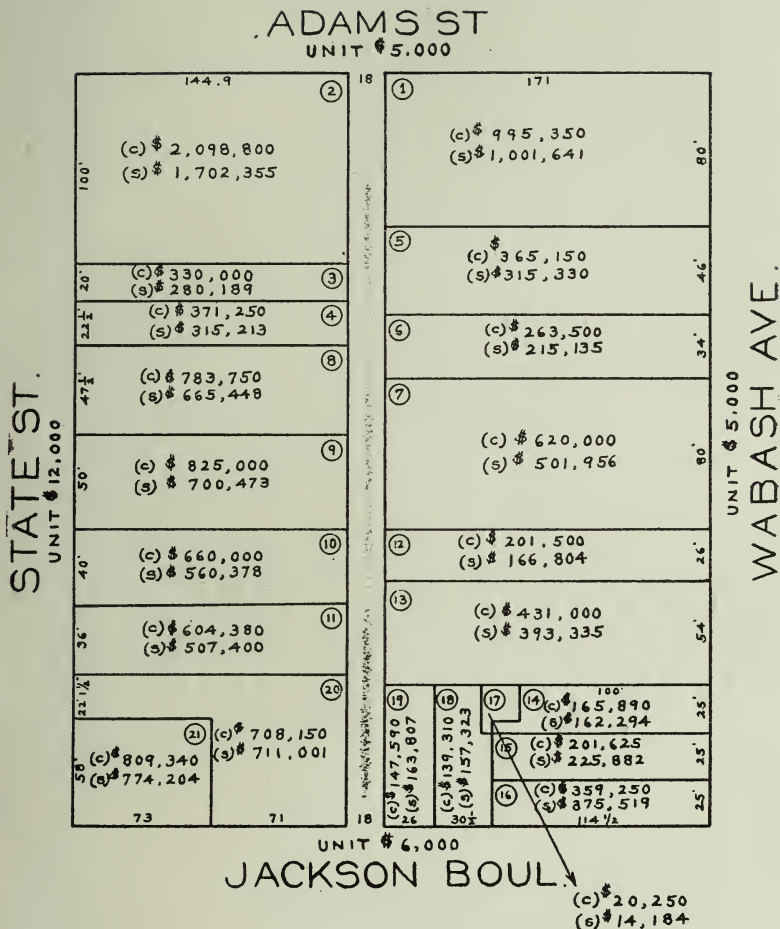


Fig. 4.

Lot Valuations by Chicago Plan and Somers System—Chicago Units Used as Basis. (c) Chicago. (s) Somers.

tion that these units are proper judgments of unit values on the four sides of this block:

(For lot numbers see Fig. 4.)

Lot Number.	Computed by Chicago Assessing department Using Chicago Plan.	Computed by Somers System.
1.....	\$ 995,350	\$1,001,641
2.....	2,098,800	1,702,355
3.....	330,000	280,189
4.....	371,250	315,213
5.....	365,150	315,330
6.....	263,500	215,135
7.....	620,000	501,956
8.....	783,750	665,448
9.....	825,000	700,473
10.....	660,000	560,378
11.....	604,380	507,400
12.....	201,500	166,840
13.....	431,000	393,335
14.....	165,890	162,294
15.....	201,625	225,882
16.....	359,250	375,519
17.....	20,250	14,184
18.....	139,310	157,323
19.....	147,590	163,807
20.....	708,150	711,001
21.....	809,340	774,204
Totals.....	\$11,101,085	\$9,909,871

It will be seen by the foregoing table that all of the lots except Nos. 1, 15, 16, 18, 19 and 20 are computed higher by the Chicago Plan than under the Somers System. This fact is traceable in every case except the corner lot No. 21, to the difference in the curve of value from which is worked out the values of rear portions.

Let us take up some of these lots separately:

Lot No. 1—The two values are approximately the same. This is due to the fact that the rear of the lot—the portion that actually fronts on Adams Street—is figured by the Chicago Plan on the basis of the Wabash Avenue unit, and under the Somers System on the Adams Street unit, and as these units are exactly the same, the net result would be about the same; the slight difference is traceable here more to the two differing methods of figuring alley influence.

Lot No. 2—Here is a difference in the two results of \$396,445. This difference is traceable to two factors: First, the portion of this lot on Adams Street beyond the 100-foot corner influence is figured by the Chicago Plan on the basis of the \$12,000 unit on State Street, and not on the basis of the unit of value on Adams Street; second, the alley influence is figured on the basis of the State Street unit of value, and not on its proportion of the alley value on any fair basis. In other words, the Chicago Plan says first that the corner influence made by State and Adams Streets, coming together, only extends 100 feet on Adams Street from the corner, and then it adds about \$7,000 a foot front to the Adams Street unit of value for the purpose of valuing the 44.9 feet that front on Adams Street; and worse than that, it also values five feet of the alley abutting on this portion of the lot at the same rate.

The result on these two lots produces some very queer and seemingly unjustifiable results. An alley foot in the middle of Lot No. 2 is worth \$600 in addition to the land value abutting; right across the alley, an alley unit in the middle of Lot No. 1 is worth only \$250. This alley ought to be just as valuable on one side as on the other; in point of fact it is just as valuable at these two points under consideration, no matter by what method of computation one arrives at the result. What is there to justify a value 240 per cent higher on one side of the same alley than on the other? We find this same alley trouble farther back from the street. Take an alley foot in the middle of lot No. 10, and we find a value computed by the Chicago Plan of \$426; right across the alley in the middle of Lot No. 12, we find the same alley is worth only \$162.50. Of course this alley discrepancy runs the whole length of the two sides. In addition to the discrepancies pointed out, the whole Chicago alley plan is wrong in principle. It not only heaps up values against the lots on the side of the block toward the higher units, and on lots that lie alongside of alleys where the alleys meet the streets, but it places the same relative value on an alley ten feet wide that it does on an alley 20 or 22 feet wide; and manifestly the light and air to be obtained from an alley 22 feet wide are greatly in excess in value, especially between two high buildings, than in the case of an alley 10 feet wide.

Let us return to another feature of Lot No. 2. Under the Chicago Plan this lot would be computed to the same value exactly if there were a \$12,000 unit on Adams Street and a \$5,000 unit on State Street; yet there is no person so ignorant of land values as not to know that a lot that has a frontage of 144.9 feet on a street with a unit value of \$12,000 and a frontage of 100 feet on a street with a unit value of only \$5,000, is worth very much more than is a lot with values just reversed. What shall we say of a system that measures out values under two situations so widely different in their effects, so that the result is exactly the same?

Let us now consider the rear portions of Lots Nos. 1 and 2, that is the portions not figured by the corner lot tables of the Chicago Plan. At the rear of Lot No. 1 we have 71 feet fronting on Adams Street with a depth of 80 feet. This ought to be figured at the Adams Street unit, but it is not,—it is figured at the Wabash Avenue unit; as these two units happen to be the same, the result is not very different in either case; in the case of Lot No. 2, however, we have 44.9 frontage on Adams Street, 100 feet deep. If it were figured at the Adams Street unit value it would be 44.9 times \$5,000; as a matter of fact it is figured at \$120 a square foot, which is the square foot value of the first hundred feet from the front on State Street. Even the Chicago percentage for depth table is not used, but the whole tract is figured as of the same value as any part of the first 100 feet from the street front on State Street. Another view of this method is, after saying that the corner influence does not exert itself over 100 feet from the corner of Adams and State Streets on Adams Street, there is added over \$7,000 per foot because this part of the lot is under corner influence. Of course it may be that \$5,000 does not represent the true unit value on Adams Street. This \$5,000 unit value does not seem to be used for any frontage on Adams Street; its only use appears to be to affect the value of 100 feet from either corner, and after that the values are based on the unit values of other streets. On Adams Street we have two units of values—one toward Wabash Avenue at about \$5,000 and the other toward State Street at over \$12,000. Such absurd jumps in value do not occur anywhere.

If the three units on these three streets are correct relatively and specifically, the values of these two lots figured out under the Somers System will stand a much severer analysis from every standpoint. Under the Somers System the Adams Street \$5,000 unit stands for something; it means that all of the frontage on that street far enough away not to be influenced by the units of the other streets, shall be computed on the \$5,000 basis. There is some "overlap" on Adams Street towards State Street, because State Street is so much better that its effect runs farther on Adams Street than 100 feet; but it does not amount to more than doubling the value of the Adams Street unit. The part of this land affected by the overlap from the State Street unit is illustrated in Fig. 7, which diagram illustrates the effect of every unit in the block on every square foot of the block.

The trouble with the valuation of this lot lies in the expression of judgment in the units themselves, and the use of those units after they have been obtained. The relation between State and Adams Streets as expressed in these units may be wrong. The relation between all the other units may or may not be accurate, but they cannot be assumed to be right if any one of them is only expressed for the purpose of getting at some unknown corner value. Corner values are the effect of two other values coming together, and those other values must be shown before we can find out what that effect is. Under the Chicago Plan—especially on Adams Street—the unit appears to have been used only for the purpose of bringing about some pre-conceived notion of corner value, and then ignored for the real frontage on the street.

The differences in Lots Nos. 3, 4, 8, 9, 10 and 11, all fronting on State Street, are all traceable to the percentages for depth that have been discussed at length at another place in this report. The same is true of Lots Nos. 5, 6, 7, 12 and 13, fronting on Wabash Avenue.

Lots 14, 15 and 16 front the short way on the lower-valued street, and run lengthwise with the higher valued street. The expert of the Chicago assessing department acknowledges that the Chicago corner lot plan does not properly compute corner lots so situated to the corner. This is especially illustrated by the valuation made by the Chicago department on Lot No. 16. This lot would figure out the same in value if the high unit were on Wabash Avenue, instead of being on Jackson Boulevard, with the lower unit also transposed, as it is with the units as they are on this plat. Of course if the units were transposed, the value of this lot would not be the same as with the units as they are. The Somers System computation gives an accurate distribution of values, all of which can be defended, and all of which would change on these particular lots if the units were transposed. The computation of Lot No. 16 at the corner is very much higher than the Chicago Plan figures it, but of course any comparison of a result that is mathematically arrived at with one that is acknowledged to be wrong in itself because the methods used are wrong, amounts to but little. The Somers results show a dropping away of values in the three lots under all the conditions surrounding this corner.

Lots Nos. 18 and 19—The differences in the values of these two lots are traceable entirely to the different percentage for depth. Under the Somers System there is a greater value given to the first 75 feet from the front than is given under the Chicago Plan.

Lots Nos. 20 and 21—Lot No. 20 is an irregular-shaped lot, and the values by the two computations are practically the same. Yet we find a queer situation at this corner if we combine the values

of the two lots, Nos. 20 and 21, as computed under the Chicago Plan. If we combine these two lots we have a lot 80 feet front on State Street and 144 feet front on Jackson Boulevard. Valuing all of this land under the Chicago Plan, we have a computed value of \$1,781,904. If we compute Lot No. 21 under the Chicago Plan we have the value of that lot just as it is given by the Chicago department, \$809,340. Manifestly the value of the Lot No. 20 must be the difference between these two, or \$972,564; yet we find the Chicago department has computed the value of this lot in some way at \$708,150. We confess that, while we are able to apply the Chicago Plan to every other computation in this block and obtain the same results, we are unable to apply any part of the Chicago rules to bring about this result. There appears to be a loss in some way of \$264,414 on this lot. If this is but an error in computation we have nothing further to say, as errors have occurred before in computations of this sort and are likely to occur again; but if this value of \$708,150 is figured out accurately by the Chicago Plan, it does not represent in its result anywhere near the true relation of value to that of the lot next to it, No. 21. The difference between the two values in the case of Lot No. 21 is traceable to the different methods of handling corner values. It is not necessary to repeat here the discussion concerning the two methods for this sort of a computation; the difference is but $4\frac{1}{2}$ per cent.

COMPARATIVE RESULTS OF LOT COMPUTATIONS MADE FROM UNITS DEDUCED FROM SPECIFIC LOT VALUES.

However, we will make another comparison of the use of the two systems, using for that purpose units as nearly as they can be deduced from the lot computations actually made for inside lots on this block by the Chicago department. We have actual lot frontages on three sides of this block. Take the valuations of the Chicago department on Lot No. 9 and on Lot No. 7, and we find that their specific values of these two lots give a Somers unit on State Street of about \$14,400, and on Wabash Avenue of about \$6,000. In point of fact these figures are a shade high for State Street, and a shade low for Wabash Avenue, but we have used 20 per cent because we find about 20 per cent difference when we compare the Chicago valuation of Lots Nos. 18 and 19, in Jackson Boulevard, and deduce a Somers unit of \$7,200 for Jackson Boulevard. Increasing the Chicago units on three sides 20 per cent to obtain a Somers unit, we do the same thing on Adams Street, where we have no actual frontage of a single lot to use for a basis. This method of expressing values as brought out for typical inside lots by the Chicago assessing department necessitates higher figures to bring the same results for the interior lots.

We therefore compute the lot values in this block on the following units:

State Street—\$14,400.

Adams Street—\$6,000.

Wabash Avenue—\$6,000.

Jackson Boulevard—\$7,200.

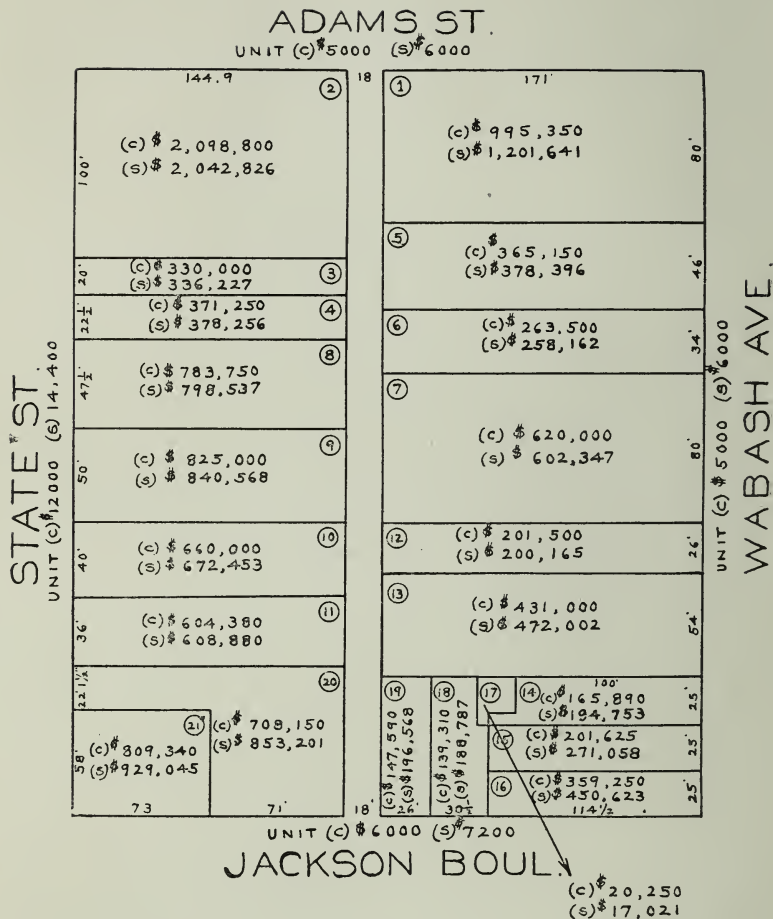


Fig. 6.

Lot Valuations by Chicago Plan and Somers System—Chicago Lot Valuations Used as Basis. (c) Chicago. (s) Somers.

These lot values compared with the lot values computed by the Chicago department are as follows: (See Fig. 6):

Lot No.	Chicago lot valuation.	Distribution of same value by Somers System.
1	\$ 995,350	\$1,201,641
2	2,098,800	2,042,826
3	330,000	336,227
4	371,250	378,256
5	365,150	378,396
6	263,500	258,162
7	620,000	602,347
8	783,750	798,537
9	825,000	840,568
10	660,000	672,453
11	604,380	608,880
12	201,500	200,165
13	431,000	472,002
14	165,890	194,753
15	201,625	271,058
16	359,250	450,623
17	20,250	17,021
18	139,310	188,787
19	147,590	196,568
20	708,150	853,201
21	809,340	929,045
Totals, ...	\$11,101,085	\$11,891,516

A discussion in detail of the values of the lots thus computed may not be necessary. In considering the specific lot value it must be remembered that the value of the interior lots on State Street and Wabash Avenue are approximately the same; they are in fact meant to be the same, the difference noted being entirely because of the slight adjustment so as to use round unit values instead of fractions. It will be seen that with this expression of the judgment of value, Lot No. 2 is approximately the same under both computations, while Lot No. 1 is much higher under this second treatment.

What is said by this table is that if Lot No. 9 is worth \$825,000, and if Lot No. 19 is worth \$147,590, then Lot No. 21, at the corner, is worth \$929,045, and not \$809,340. And so on around the block, taking the specific lot values of typical inside lots as set forth by the Chicago assessing department, we arrive at the corner lot values and values near the corners, and values affected by overlapping units, as set forth for each of the lots in this block.

Under the Chicago method the square foot located in Lot No. 2 alongside the alley and 80 feet from Adams Street, and excluding any alley effect, is worth \$120; a square foot straight across the alley in lot No. 1, only 18 feet away, and without the alley effect, is worth \$50. Of course no such difference in actual value exists. Under the Somers System computation either of these square feet is worth \$25.50. And why should they not be of exactly the same value? They are each 80 feet from the same street frontage and bear the same relation each to the 79 feet in front toward Adams Street, as does the other.

The square foot in Lot No. 2, located 100 feet from Adams Street and 144.9 feet from State Street, and without the effect of

the alley, is computed to be worth \$120; the square foot next to it in Lot No. 3 is computed to be worth \$76.80; the absurdity of this result appears upon the mere statement of the results of the computations for each square foot.

USE OF CORNER LOT DIAGRAMS.

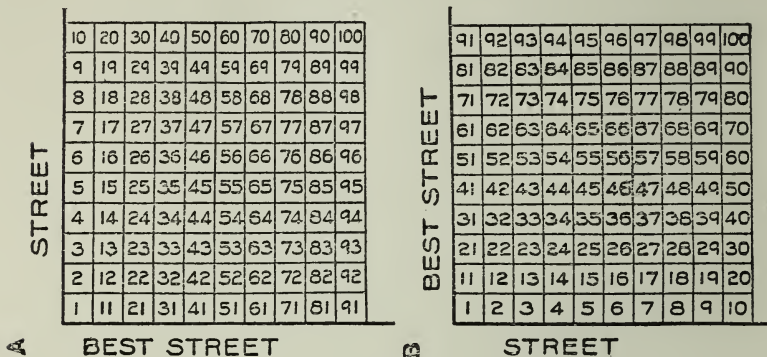


Fig. 5.

The above diagrams are used in the computation of corner values. Each diagram represents 100 feet square, on the corner of a block. The number in each small square is an index number. The Somers Corner tables show the value of each of these small squares for every conceivable combination of unit values on the two sides. The side of the above squares marked "best street" must be laid alongside the street coming to the corner with the highest unit. In the following description of the method of computing this block, the numbers of small squares are indicated in one or the other of the foregoing diagrams, and anyone can determine which one by following the directions as to where the side of the diagram marked "best street" is to be placed.

It is because the Somers tables show specific values for each of these small portions of the whole area affected by corner influence, that they may be as well used with lots running the "wrong" way with the units as with lots running the "right" way. The values that Mr. Somers has worked out for these small squares is the mathematical effect of two units of value coming together at a corner upon each of the small squares, taking into consideration the mathematical relation and position of each square to the actual corner. Small square No. 1 is always the most valuable; the value of each of the other squares drops away in curves in every direction from No. 1, and the curves so formed are always commensurate with the mathematical effect of one unit of value upon another. In this way the enhancement of value at the corner is apportioned to each separate property always in proportion to its size and shape, and its relation to the corner; and that higher part of enhancement which is at the corner is always apportioned to the lot which includes the actual corner, while those lots that are not at the actual corner but only "near" the corner, are enhanced only their portion because of the "nearness."

**DESCRIPTION OF LOT COMPUTATION IN CHICAGO
BLOCK BOUNDED BY STATE AND ADAMS
STREETS, WABASH AVENUE AND
JACKSON BOULEVARD.**

The following is a description in detail of the careful method of ascertaining all of the value that exists in the land as expressed by the judgment and shown in the units. To follow this description carefully one ought to compare each dimension and statement with the exhibits on the two diagrams marked Fig. 4 and Fig. 7. The first of these diagrams shows the actual lot valuations by the two systems, using the units given by the Chicago assessing department as true units of value; the other exhibits the Somers method of obtaining the gross land value of the block, and shows the extent of the effect of the various units used for computation.

The description of the method of making these lot valuations is as follows by the Somers system:

The first operation in figuring any block is to ascertain the alley unit; this is done by figuring the value of the alley as though it were a lot, its several parts being valued from the influences of the units which naturally affect them.

This alley is 18 feet wide, and is 396 feet long on one side and 395 feet long on the other side. Toward the Adams Street end of the alley the \$5,000 unit applies, and toward the Jackson Boulevard end of the alley the \$6,000 unit applies. In the center it is found that the \$12,000 unit on State Street exerts an influence extending back into and including the bed of the alley. Therefore, this central portion of the alley is figured from the State Street side. In this way we find the gross value of the alley, which amounts to \$274,867, and dividing this by the frontage of 791 feet, we obtain the alley unit of \$347.45. Therefore, the sum of \$347.45 is added for every foot of alley frontage to the values of those lots that abut upon the alley.

The second operation in figuring any block is to ascertain the values of all the properties within the corner influence, but for the purposes of this description, lots will be given in the following order: 2, 3, 4, 8, 9, 10, 11, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 7, 6, 5 and 1.

Lot No. 2 takes in all of the value in the 100-foot corner square as shown in the Somers corner tables. According to the \$12,000-\$5,000 unit it amounts to \$1,420,848, but as this lot measures 100 feet on State Street (\$12,000 unit) and 44.9 on Adams Street, (\$5,000 unit) there is a strip of ground outside of the corner valuation table measuring 44.9 x 100 feet. In making the computation it is found that at a point 50 feet back from Adams Street, and 100 feet back from State Street, the influence of the \$12,000 unit on State Street exceeds that of the \$5,000 unit on Adams Street. Therefore, the influence of the \$5,000 unit is figured to a depth of only 50 feet, giving a value to this small piece of Lot No. 2 of \$162,762. The remainder of this lot 50 feet back from Adams Street, and 100 feet back from State Street measuring 44.9 x 50 feet, is figured from the \$12,000 unit on State Street, and amounts to \$84,000. To the sum of these figures must be added \$347.45 for each of the 100 feet of alley frontage this lot has, making a grand total of \$1,702,355.

Lot No. 3 is purely an inside lot, 20 feet fronting on State Street and 144.9 in depth to the alley; it is, therefore, figured entirely

from the \$12,000 unit. Referring to the Somers depth tables shows that lots 144.9 feet deep are worth 113.85 per cent of the value of the unit. This computation gives a value of \$273,240 for the lot, to which is added \$6,949 for 20 feet of alley frontage at \$347.45, giving a grand total of \$280,189.

Lot No. 4, also an inside lot, is figured in exactly the same way as lot No. 3, the only difference being that it is slightly wider. The ground is worth \$307,395, and the alley adds \$7,818, making a grand total of \$315,213.

The same rules apply in computing the values of Lot No. 8, worth \$665,448; No. 9, worth \$700,473, and No. 10, worth \$560,378.

Lot No. 11 measures 36 x 144.9 feet, and of this total a strip 16.1 feet x 144 feet is outside the corner valuation table. It is, therefore, figured as an inside lot 16.1 foot frontage, with a depth of 144 feet, and is worth \$219,958. It will be noted that this depth is given as 144 feet because the block is slightly irregular in shape, the Jackson Boulevard end measuring 144 feet, while the Adams Street end measures 144.9 feet. That part of Lot No. 11 within the corner influence takes in 99-100 of the values of squares 81 to 90 in the \$12,000-\$6,000 Somers corner table, the units being those on State Street and Jackson Boulevard, respectively. It also takes in all of the value in squares 91 to 100 in the same table, the total amounting to \$241,860. There is a small piece of this lot which cannot be figured straight back from the street because it is in the rear of that part of the lot within the corner influence. It measures 19.9 x 44 feet, and is valued from the \$12,000 unit on State Street; the method of computing being to deduct the percentage corresponding to a depth of 100 feet (100 per cent) from the percentage corresponding to a depth of 144 feet (113.85 per cent), leaving 13.85 per cent. This percentage, therefore, is taken of the \$12,000 unit and multiplied by 19.9 feet, giving a value for this part of the lot of \$33,074. To these several sums \$12,508, for 36 feet of alley, is added, making a grand total of \$507,400.

Lot No. 20 consists of two parts, and these two parts may be computed more easily separately than together. The first portion is that which fronts on State Street and measures 22 feet 1½ inches x 73 feet. This tract is wholly within the influence of the \$12,000 corner at the intersection of State Street and Jackson Boulevard (units \$12,000 and \$6,000 respectively). As this portion fronts on State Street and is 58 feet from Jackson Boulevard it has 2-10 of the value of the squares 51 to 57, in the \$12,000-\$6,000 corner table; all of the value of the squares 61 to 67; all of the value of the squares 71 to 77, and 1-100 of the value of the squares 81 to 87, making a total for this portion of Lot No. 20 of \$242,172. The other portion of this lot fronts on Jackson Boulevard. It measures 71 feet x 80 feet 1½ inches and is partly within the influence of the \$12,000-\$6,000 unit at State and Jackson Boulevard. That part to be computed by the corner valuation table measures 27 feet x 80 feet 1½ inches, therefore is worth the sum of the values of the following squares in the \$12,000-\$6,000 Somers corner table: 7-10 of 8, 18, 28, 38, 48, 58, 68 and 78, 1-100 of square 88, the totals of 9 and 10, 19 and 20, 29 and 30, 39 and 40, 49 and 50, 59 and 60, 69 and 70, 79 and 80, and 1-100 of the total of 89 and 90, amounting to \$197,712. The remaining frontage of 44 feet on Jackson Boulevard is figured to a depth of 60 feet as an inside lot, its value being \$209,880, and a small piece of the lot in the rear of the 100 foot square and 60 feet back from Jackson Boulevard, is figured from the \$12,000 unit on State Street, for reasons described in connection with Lot No. 2. To these several sums must be added \$27,831 for 80.1 feet of

alley frontage, making a grand total of \$468,829. The total value of the two portions, and therefore of the entire Lot No. 20 is \$711,001.

Lot No. 21 is entirely within the influence of the \$12,000-\$6,000 corner at the intersection of State Street and Jackson Boulevard (units \$12,000 and \$6,000 respectively), its value being equal to the value of the following squares in the \$12,000-\$6,000 Somers corner table: Nos. 1 to 7, 11 to 17, 21 to 27, 31 to 37, 41 to 47, 8-10 of 51 to 57, 3-10 of the values of squares 8, 18, 28, 38 and 48, and 24-100 of square No. 58; making a grand total of \$774,204.

Lot No. 19 is an inside lot, 26 x 75 feet, and its value is figured by taking that percentage of the Jackson Boulevard unit corresponding to a depth of 75 feet (88.3) and multiplying that by the frontage, 26 feet, making a total of \$137,748; to this is added \$26,059, for 75 feet of alley frontage, making a grand total of \$163,807.

Lot No. 18 also is an inside lot, but owing to its irregular shape it is figured in two sections, the first being 26 x 75 feet, and the second $4\frac{1}{2}$ x 50 feet, the offset caused by Lot No. 17. The total value is \$157,323.

Lot No. 17 undoubtedly has some means of access to either a street or alley. Owing to the fact that no such means of access are shown on the plan it is figured as a piece of land, just as though it were a part of one of the lots which it adjoins. The computation is made from the \$6,000 unit on Jackson Boulevard as a lot 19 x 19 feet, 56 feet back from the \$6,000 unit on Jackson Boulevard, and a small L in the lot measuring 4 feet $1\frac{1}{2}$ inches x 6 feet, is figured as 50 feet back from Jackson Boulevard. The total value is \$14,184.

Lot No. 16 takes in the first 25 feet of the \$6,000-\$5,000 Somers corner table, the part 25 x 100 feet being worth \$333,846. The smaller part of the lot measuring 14.5 x 25 feet, is figured as an inside lot from the \$6,000 unit on Jackson Boulevard, is worth \$41,673, making a grand total of \$375,519.

Lot No. 15 takes in the second 25 feet of the corner influence of the Wabash Avenue frontage, and, as in lot No. 16, there is a small piece in the rear measuring 14.5 x 25 feet. This, however, is figured as 25 feet back from the \$6,000 unit on Jackson Boulevard. The total value of Lot No. 15 is \$225,882.

Lot No. 14 takes in the third 25 foot frontage on Wabash Avenue from the corner of Jackson Boulevard, and is within the corner influence like Lots 15 and 16, its value being taken directly from the Somers corner tables. In the rear of this lot is a small extension 6 x 14.5 feet, which is figured from the \$6,000 unit on Jackson Boulevard, as 14.5 x 6 feet at a distance of 50 feet from the frontage. The value of Lot No. 14 is \$162,294.

Lot No. 13 measures 54 x 171 feet. Of this 25 x 100 feet adjoining Lot No. 14 is within the corner influence, and as in the case of the three preceding lots, that part of its value is taken from the \$6,000-\$5,000 Somers corner table. The remainder of the frontage to a depth of 100 feet is figured as an inside lot from the \$5,000 unit on Wabash Avenue to the rear of this part of the lot, and that part of the lot within the corner influence is a rectangular piece of ground 71 x 54 feet. It is figured from the \$6,000 unit on Jackson Boulevard at a distance of 75 feet from that street, as described in Lot No. 2. To these sums must be added 54 feet of alley frontage at \$347.45 per foot, making a grand total of \$393,335 for the lot.

Lot No. 12 is a purely inside lot, and is figured as such from the \$5,000 unit on Wabash Avenue, proper addition being made for alley frontage. Its total value is \$166,804.

Lot No. 7 also is an inside lot measuring 80 x 171 feet, and

its value, \$501,956, is calculated in the same manner as that of the other inside lots.

The same method is followed in calculating the value of Lot No. 6, which is worth \$195,500.

Lot No. 5 is located in much the same way as Lot No. 11, and the same methods apply in computing its value, which amounts to \$315,330.

Lot No. 1 includes the first 80 squares in the \$5,000-\$5,000 Somers corner table as shown from the units on Wabash Avenue and Adams Street, and in addition to this there is 71 feet of frontage on Adams Street and a depth of 80 feet which is figured as an inside lot. Proper addition is also made for the alley. The total for the lot is \$1,001,641.

THE FIRST STEP IN THE COMPUTATION UNDER THE SOMERS SYSTEM.

After the exercise of judgment of land value of a city block has been completed by the determination of the value of each unit foot on each side of the block, the first step in the computation is to ascertain the gross land value of the block.

By the use of the mechanical devices and mathematical formulae prepared by Mr. Somers for the purpose, the extent upon the block area of the effect of every unit foot value is ascertained; the block is divided up into areas, each area according to the exact effect of a certain unit or the combination of certain units. None of this effect is left to judgment; it is all ascertained scientifically, mathematically, and therefore exactly.

The particular object of this computation is to check the combined values of the lots with the gross value ascertained by this method. In this way the amount of land value to be distributed is ascertained and afterwards the combined value of the various lots shows whether this has been accurately done or not.

The process of this operation upon the Chicago block under discussion is illustrated in Fig. 7, a description of which is as follows:

The first thing to do is to ascertain the values of the corner squares.

By referring to the \$5,000-\$5,000 Somers corner table we find that division A in Fig. 7, which includes the whole of the 100-foot corner square, is worth \$755,000.

Division B in the \$6,000-\$5,000 Somers corner table is worth \$833,028.

Division C in the \$12,000-\$6,000 Somers corner table is worth \$1,455,948.

Division D in the \$12,000-\$5,000 Somers corner table is worth \$1,420,848.

Division E takes in portions of lots 1 and 5, and is figured from the \$5,000 unit on Adams Street. It is worth \$388,192.

Division F, measuring 80 feet x 171 feet, is figured as an inside lot from the \$5,000 unit on Wabash Avenue. It really is the value of lot No. 7, minus alley value. It is worth \$474,160.

Division G fronts on Wabash Avenue and adjoins the corner square. It measures 26 feet x 100 feet, and is worth \$130,000.

Division H is the first 150 feet of lot No. 6, and is worth \$195,500.

Division I is the rear part of lot No. 6. Instead of being figured from the \$5,000 unit on Wabash Avenue, it is figured from the \$5,000 unit on Adams Street, because its value really comes from its

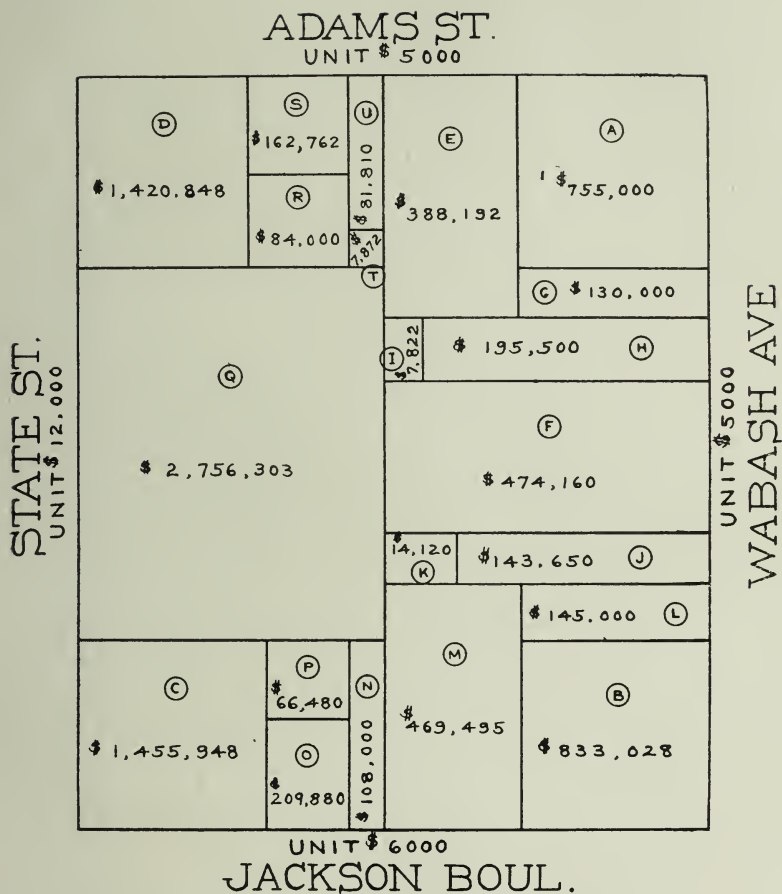


Fig. 7.

Sample Chicago Block Showing Extent of Effect of Unit Values.

proximity to the latter street. It measures 21 feet x 34 feet, and is worth \$7,822.

Division J is the front part of lot No. 12; it measures 26 feet x 130 feet, and is worth \$143,650.

Division K is the rear of lot No. 12, and is figured from the \$6,000 unit on Jackson Boulevard instead of the \$5,000 unit on Wabash Avenue, because it obtains its value from its proximity to the former street. It measures 41 feet x 26 feet, and is worth \$14,120.

Division L is the front part of lot No. 13 outside of corner influence, measuring 29 feet x 100 feet, and is worth \$145,000.

Division M measures 71 feet x 129 feet, taking in those parts of lots 14, 15 and 16 that are outside of corner influence, the rear part of lot No. 13, and all of lots Nos. 17, 18 and 19. It is figured just as an inside lot would be from the \$6,000 unit on Jackson Boulevard. It is worth \$469,495.

Division N is that part of alley falling within the influence of the \$6,000 unit on Jackson Boulevard. It measures 18 feet x 100 feet, and is worth \$108,000.

Division O is a portion of lot No. 20 and is figured to a depth of 60 feet from the \$6,000 unit on Jackson Boulevard. It adjoins the corner (division C) and extends 71 feet to the alley. It is worth \$209,880.

Division P is a small rectangle in the rear of Division O, taking in a portion of lots 20 and 11. It measures 44 feet x 40 feet, and is figured from the \$12,000 unit on State Street; it is worth \$66,480.

Division Q includes 16 feet 10½ inches of lot No. 11, all of lots 10, 9, 8, 4 and 3, with part of the alley in the rear of these lots. It measures 196.1 feet x 162 feet, and is figured from the \$12,000 unit on State Street. It is worth \$2,756,303.

Division R is a part of lot No. 2 outside of corner square at a distance of 50 feet back from Adams Street. It measures 44.9 feet x 50 feet, and is figured from the \$12,000 unit on State Street; its value is \$84,000.

Division S is a part of lot No. 2, and extends from the corner square, Division D, to the alley, with a frontage of 44.9 feet on State Street and a depth of 50 feet. It is worth \$162,762.

Division T is a part of the alley within the influence of the \$12,000 unit on State Street, beyond the influence of the \$5,000 unit on Adams Street. It measures 20 feet x 18 feet, and is worth \$7,872.

Division U is that part of the alley within the influence of the \$5,000 unit in Adams Street. It measures 18 feet x 80 feet, and is worth \$81,810.

After this comparison of gross and combined lot values has been made, the particular factors of value or detriment, local to that particular block or to particular lots in the block, must be determined, each for itself; and added to or subtracted from, the values of lots determined by calculation—sometimes called natural land value. In this way all natural and special effects of value are considered.

CONCLUSION.

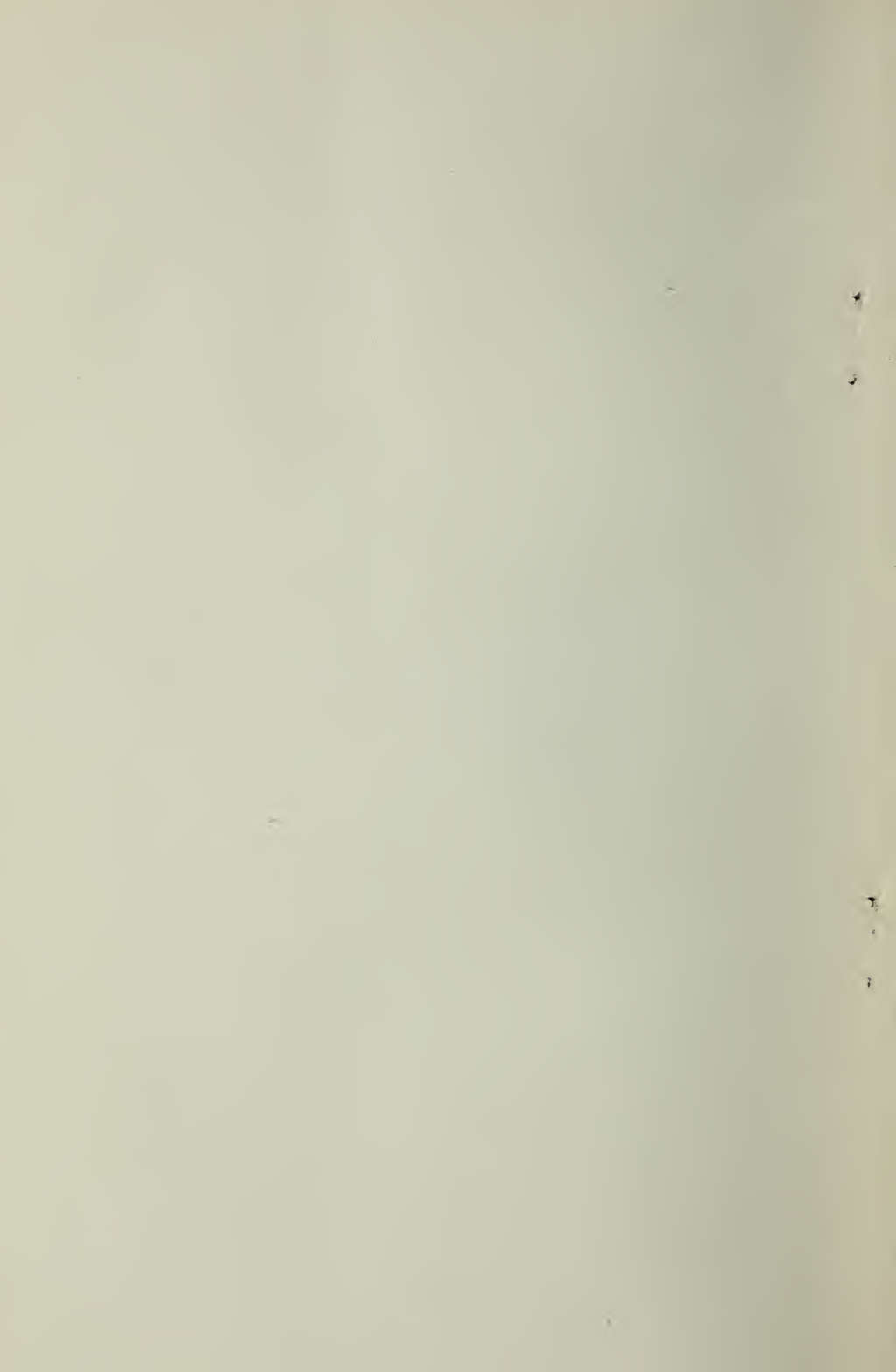
We do not contend that the lot valuations under either computation by the Somers System exhibit the exact values of the specific lots. We have shown conclusively that the Chicago figures do not—indeed the Chicago department admit as much as to several of the lots. We may dismiss all of these lot valuations as being not the actual valuation of actual lots, but rather the effect of assumed units as measured out into a given set of lot lines. This block has never been appraised correctly. That is, the attempt to use the unit

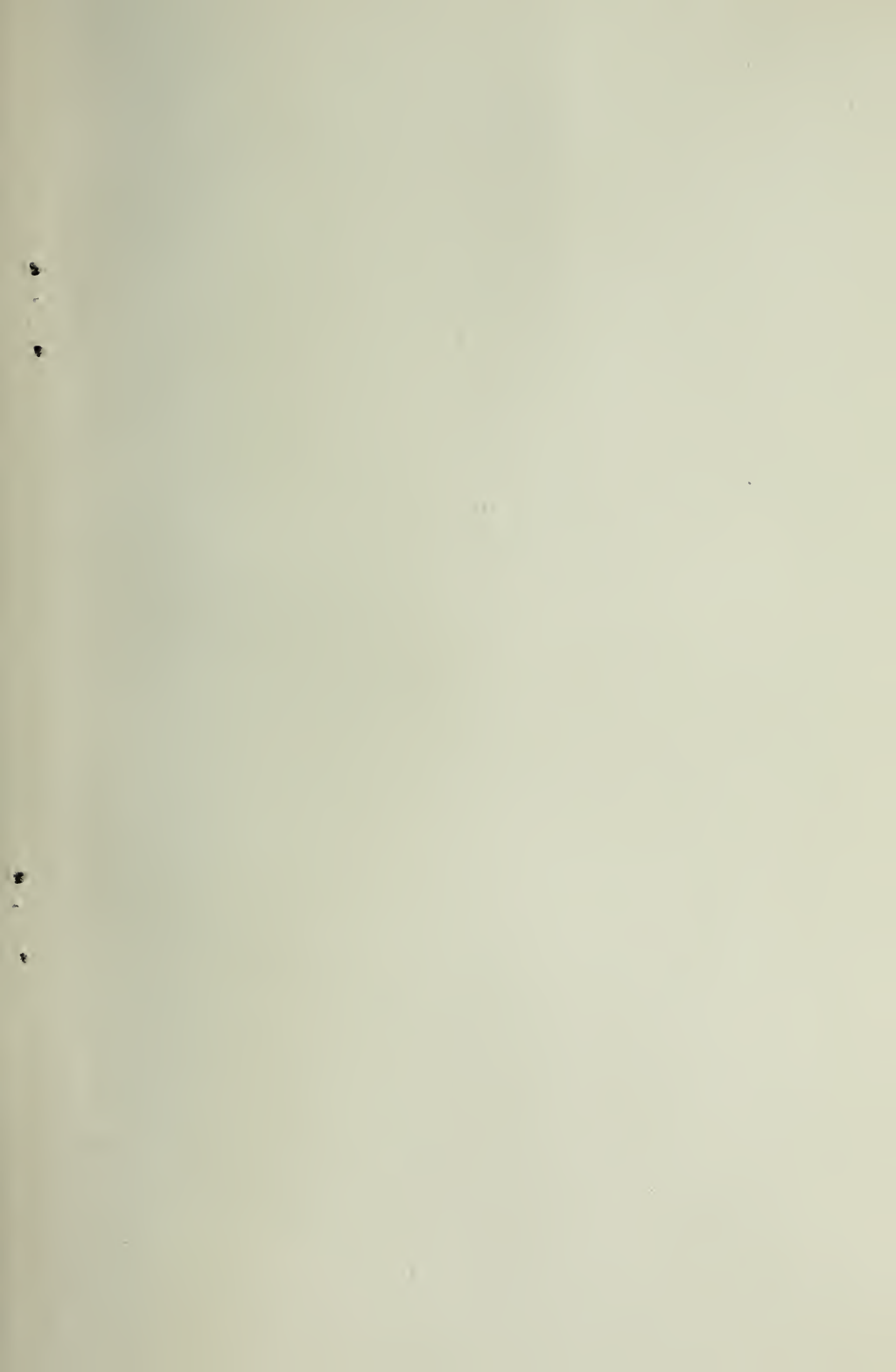
system without knowing what its effect would be, produces wrong expressions of judgment; or if right, there is little to show its correctness, and therefore we can have no confidence in the result. The discussion of the theoretical application of the Chicago Plan shows its inherent weaknesses; the application to this actual block shows many of its absurdities; and whether one thinks the Somers tables and methods produce correct results or not, it must be admitted by any impartial investigator that the Somers System results at least are consistent one with another, and that they work as well under one condition as another, and are not susceptible to being criticised, as are the rules employed by the Chicago assessing department. That the Chicago Plan is better than no plan is to be conceded; that it is better than is used by any other city in the United States, except those cities that have used the Somers System, has already been pointed out; and we believe we have demonstrated that it is so far from perfect that Chicago ought to change it for a system that is perfect, if such a one can be found. That the Somers System is as nearly perfect as it is possible to devise a plan for measuring out man's judgment of intangible values, has been conceded by students of the subject for many years. It has been used successfully and satisfactorily in two large cities, and is about to be used by several smaller municipalities. Its cost as compared with its value in a city with such tremendous values and changes in values as are shown in Chicago real estate, is so insignificant that it is scarcely to be considered. Chicago has made so great an advance over other cities by the adoption of even a crude system that the introduction of a real, exact and scientific and mathematically correct system for the entire city, as well as the Loop district, would be easier in proportion to the task in hand, than in almost any other city.

Respectfully submitted,

MANUFACTURERS' APPRAISAL COMPANY.

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